



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Reference No. : WTF18F06114061C
Applicant : Mid Ocean Brands B.V.
Address : Unit 201, 2/F, Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer : 114628
Sample Name : Wall clock
Model No. : MO7503
Test Requested : In accordance with the RoHS Directive 2011/65/EU
Test Method :
 1) With reference to IEC 62321-2:2013, disassembly, disjointment and mechanical sample preparation
 2) With reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry
 3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES
 4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES
 5) With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1:2015, determination of Hexavalent Chromium by UV-Vis
 6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS
Test Conclusion : Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU
Date of Receipt sample : 2018-06-06
Date of Test : 2018-06-06 to 2018-06-15
Date of Issue : 2018-07-03
Test Result : Please refer to next page (s)

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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**Test Results:**

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
1	Black plastic frame	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
2	Transparent glass plate	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
3	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
4	Black plastic base	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
5	Transparent glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
6	Silvery metal screw	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
7	White plastic rivet with golden coating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
8	Silvery metal sheet with red coating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		



Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
9	Silvery metal sheet with black coating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
10	Black plastic sheet	Cd	BL	PBBs : ND PBDEs : 498	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
11	Black plastic shell	Cd	BL	PBBs : ND PBDEs : 555	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
12	Black plastic cover	Cd	BL	PBBs : ND PBDEs : 289	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
13	Silvery metal sheet	Cd	BL	Cr ⁶⁺ : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
14	Dark grey magnetic ring	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
15	Silvery meta axle	Cd	BL	Cr ⁶⁺ : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
16	White plastic gear	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		



Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
17	White plastic sleeve	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
18	Semi-transparent plastic gear	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
19	Off-white plastic gear	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
20	Silvery metal sheet	Cd	BL	Cr ⁶⁺ : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
21	Silvery metal sheet	Cd	BL	Cr ⁶⁺ : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
22	Coppery metal winding of inductor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
23	White plastic bobbin of inductor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
24	Silvery metal pin of crystal oscillator	Cd	BL	Cr ⁶⁺ : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		



Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
25	Silvery body of crystal oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
26	Brown-green PCB	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
27	Solder	Cd	BL	Pb :221	Comply
		Pb	IN		
		Hg	BL		
		Cr	BL		
		Br	BL		
28	Silvery metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
29	Chip IC	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
30	Grey glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

**Remark:**

- (1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr⁶⁺) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$LOD < IN < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < IN$	$BL \leq (700-3\sigma) < IN$	$BL \leq (500-3\sigma) < IN$
Br	$BL \leq (300-3\sigma) < IN$	--	$BL \leq (250-3\sigma) < IN$

BL= Below Limit OL= Over Limit LOD = Limit of Detection -- = Not Regulated

- (2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- (3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.
- (4) ppm = mg / kg, based on the dry weight of tested sample.
- (5) ND = Not Detected, less than the value of Method Detection Limit.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the wet chemical testing.
- (7) MDL= Method Detection Limit in wet chemical test.

Test Items	Pb	Cd	Hg	Cr ⁶⁺	PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	µg/cm ²	mg/kg
MDL	2	2	2	2	0.1	5

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr⁶⁺ for polymer and composite sample is 2mg/kg and MDL of Cr⁶⁺ for metal sample is 0.1µg/cm².

- (8) According to IEC 62321-7-1:2015, determined of Cr⁶⁺ on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm².

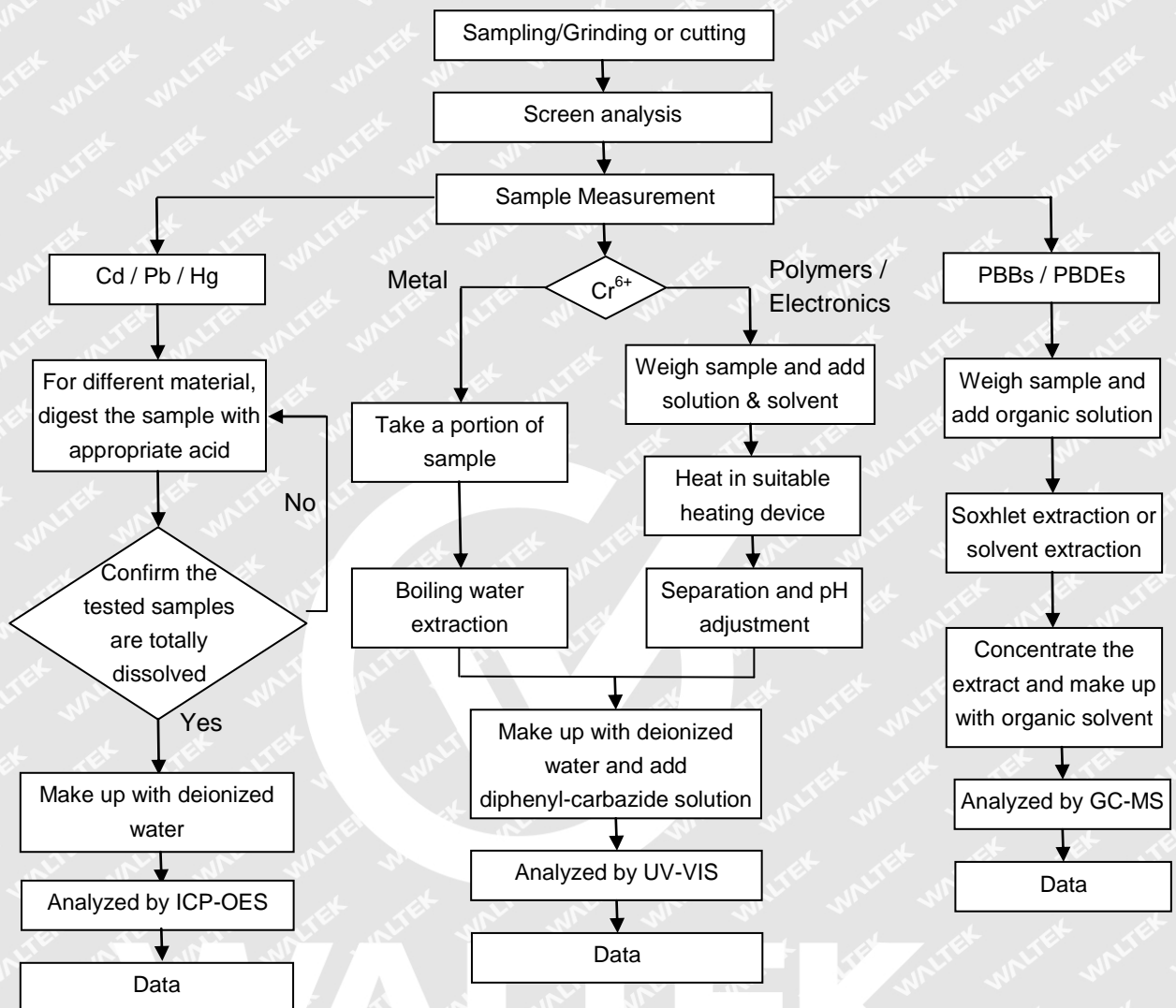
Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

- (9) The testing standard "IEC 62321-7-2:2017" does not been accredited by CNAS.
- (10)As per client's requirement, the results of specimen from No.10 to No.29 are extracted from report No.WTF18F05112411A1C and No.30 is extracted from report No.WTF18F05112411A1R1C



Measurement Flowchart:





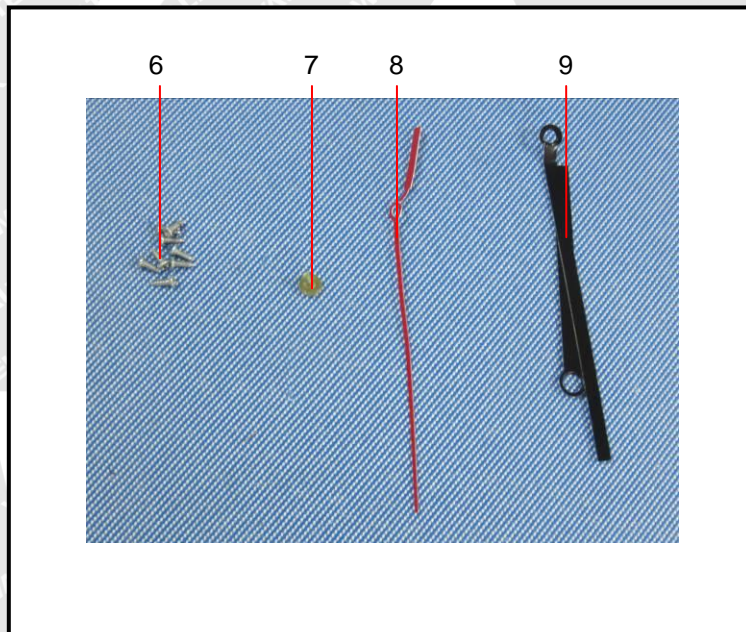
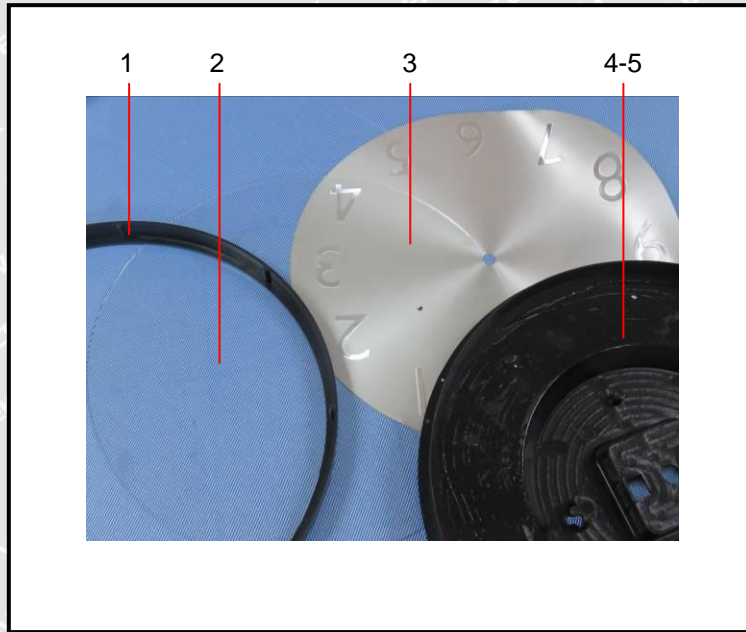
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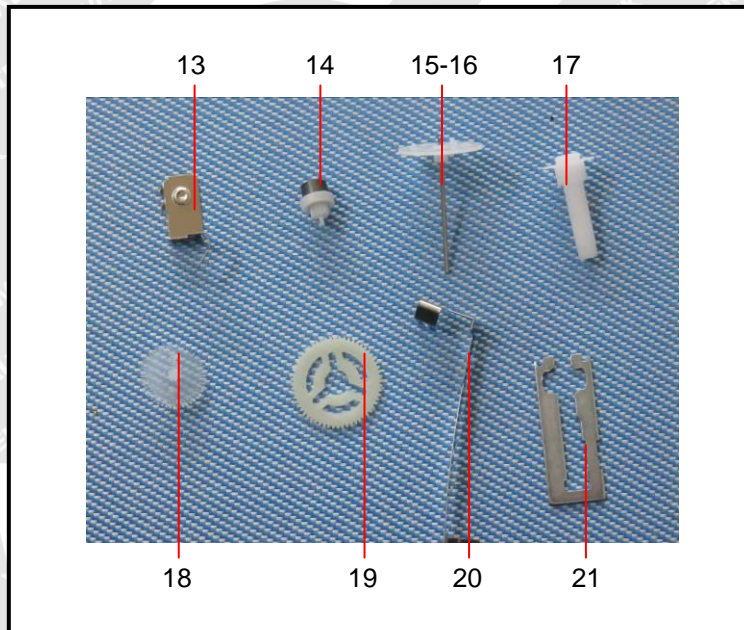
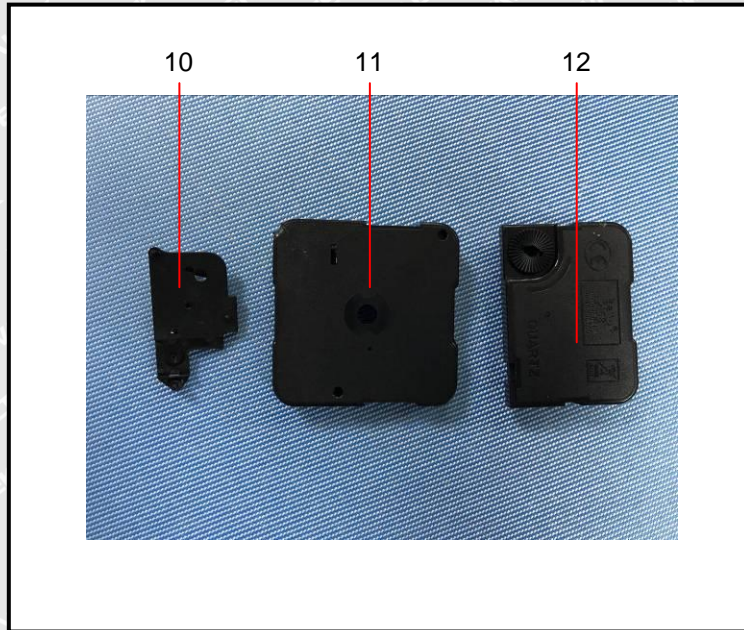


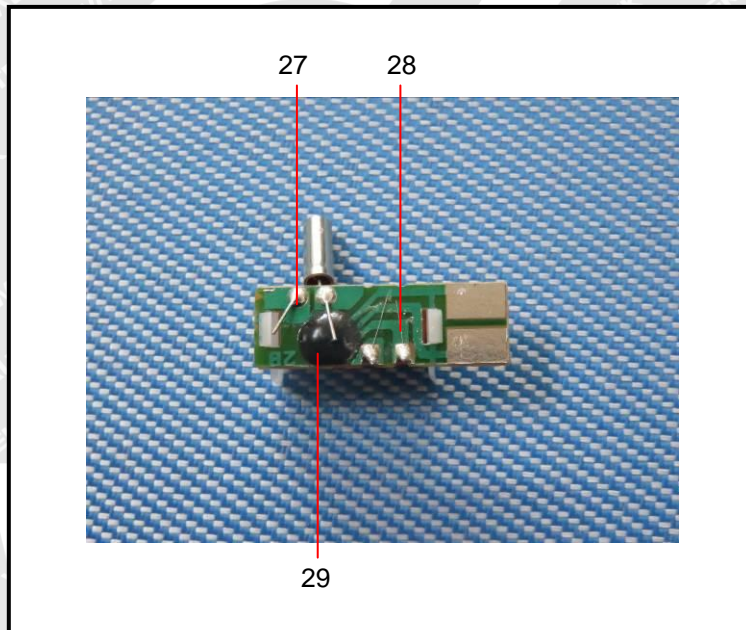
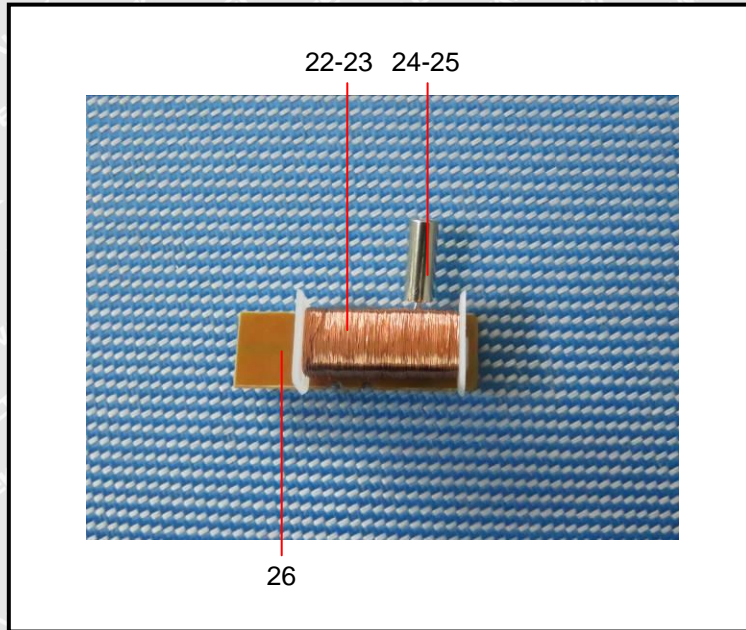
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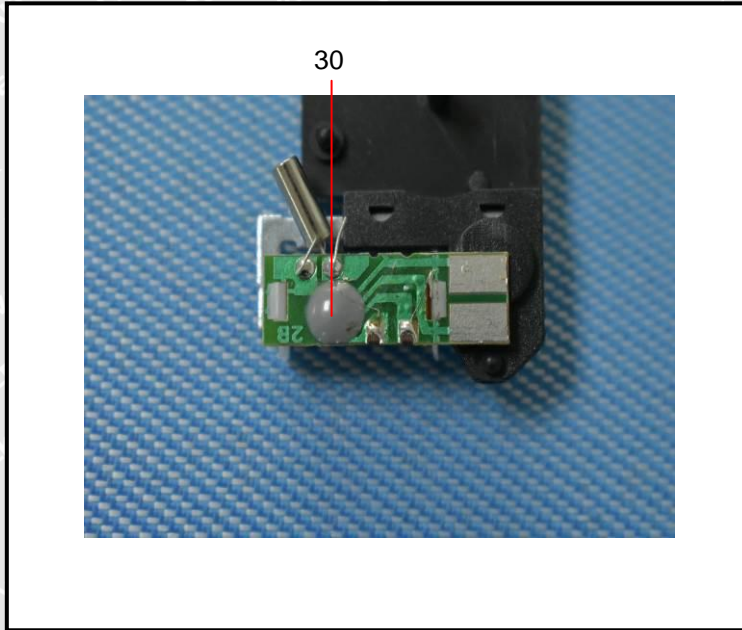


Photograph of parts tested:









==== End of Report ====

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